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MAY 31 2002

**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY**

May 31, 2002

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: ET Docket 01-278, Part 15 Proceeding on Radar Detector Interference

Dear Ms. Dortch:

The various comments in the Part 15 Proceeding demonstrate the need for a limit on emissions from radar detectors. Radar detector interference has caused, and will continue to cause, debilitating interference and severe harm to the owners and operators of licensed Ku-band networks, unless the Commission implements rules to limit emissions from the radar detectors. Therefore, Satellite Industry Association ("SIA") urges the Commission to enact rules immediately imposing limits on these devices.

SIA members have coordinated further testing and studies on radar detector interference and has refined its proposal for an emissions limit that will adequately protect Ku-band earth stations. Attached hereto are the following:

- Attachment 1 is an analysis supporting the revised limit of 85 uV/meter at a distance of 3 meters. This limit represents a reconciliation of the various proposals made by the satellite industry in their comments in this proceeding, taking into account further testing.
- Attachment 2 presents a survey of VSAT antenna installations and the distance from a radar detector. Based on this survey, the unified proposal in Attachment 1 reflects an assumed minimum distance of 5 meters between VSATs and the interfering radar detector.
- Attachment 3 contains proposed amendments to the rules in Parts 2 and 15, incorporating the proposed limit and a recommendation for certification procedures for radar detector compliance.

In the proposed Part 15 rules in Attachment 3, SIA recommends that the current exemption for radar detectors from Part 15 technical rules be eliminated because the satellite industry has demonstrated the debilitating interference caused by these devices. The serious

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nature of the interference and the frequency with which the interference events are occurring necessitate regulation of the manufacturing and importing of these devices. The non-interference requirement imposed on *operators* of the device is insufficient to protect licensed Ku-band earth stations. The manufacturing and importing of these devices must be regulated.

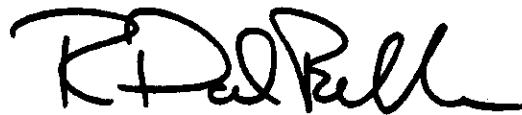
Our proposed amendments to the Part 15 rules also include a definition of a radar detector and a recommendation for certification procedures for equipment authorization. Due to the high levels of radio frequency energy that radar detectors currently emit and the severity of the problems caused by the interference, the Commission should implement a certification authorization procedure that allows it to scrutinize compliance by manufacturers and importers. Further, the Commission should not allow certification of radar detectors by Telecommunications Certification Bodies ("TCBs"). Therefore, we propose an amendment to Part 2 of the rules to except certification of radar detectors from the scope of the TCBs' duties.

Finally, SIA recommends a provision incorporating a limit of 85 uV/meter at a distance of 3 meters in the frequency range of 10.7-12.7 GHz in order to adequately protect Ku-band earth stations from harmful interference by radar detectors. Some radar detector manufacturers have already begun marketing and selling a new line of radar detectors that sweeps across the Ku-band uplink frequency as well. Therefore, in order to provide a minimum level of protection from radar detector interference in other frequency ranges, the current Part 15 emission limits above 30 MHz should also apply to radar detectors.

SIA urges the Commission to make these rules effective immediately upon publication in the Federal Register. Due to the severe harm caused by radar detector interference into licensed Ku-band earth stations, the egregiously high levels of emissions above limits imposed on other devices, and the wanton disregard for good engineering practices, the Commission has good cause for expediting the effective date of these rules.

Pursuant to the Commission's rules on *ex parte* filings, we are filing this letter and the attachments in the record of the above-referenced proceeding. Please contact me at (703) 739-8357 if you have any questions.

Respectfully submitted,



Richard DalBello
Executive Director
Satellite Industry Association

Enclosures

cc: Julius Knapp
Geraldine Matisse
Ira Keltz
Alan Scrim
Robert Nelson

Attachment 1

For a narrow-band forward carrier: reception of a 64 kbps carrier by a 1.8 m terminal using 7/8 FEC and QPSK modulation. C/N threshold equal to 10.2 dB and minimum clear sky margin equal to 1 dB. The spacecraft eirp of 12.3 dBW corresponds to approximately 4 dB below the blanket licensing limit of 6 dBW/4kHz for this 40 kHz carrier.

$$Goa := -10$$

... Off-Axis gain of earth station toward the interference source (dBi)

$$n := 0.65$$

... antenna efficiency (%)

$$S := 35788$$

... Range of satellite (km)

$$freq := 11.95$$

... operating frequency (Hz)

$$lamda := \frac{3 \cdot 10^8}{freq \cdot 10^9}$$

... wavelength (m)

$$lamda = 0.025$$

$$L := 20 \log(S) + 20 \log(freq) + 92.45$$

... Path Loss (dB)

$$L = 205.072$$

$$D := 1.8$$

... earth station diameter (m)

$$CI := 17$$

... carrier to interference level (dB)

$$Gr := 20 \log(D) + 20 \log(freq) + 10 \log(n) + 20.4$$

... Antenna Gain (dB)

$$EIRP := 12.3$$

... Satellite downlink power (dBW)

$$G_{1m2} := 10 \log \left(\frac{4 \cdot \pi}{lamda^2} \right)$$

... Gain of 1m^2 antenna (dBi)

$$G_{1m2} = 42.997$$

$$C := EIRP - L + Gr$$

... carrier power at the receiver (dBW)

$$C = -147.59$$

Assume a C/I of at least 17.0 dB, then

$$I := C - CI$$

... interfering signal (dBW)

$$I = -164.59$$

$$pfd_i := I - Goa + G_{1m2}$$

... pfd of interferer in dBW/m2

$$pfd_i = -111.593$$

$$E_i := \sqrt{\frac{pfd_i}{120 \cdot \pi \cdot 10^{10}}}$$

... interfering signal in V/m at the input to VSAT

$$E_i = 5.111 \times 10^{-5}$$

$$EFI := E_i$$

... electric field intensity when radar detector
is 3 m away from VSAT

$$EFI = 5.111 \times 10^{-5}$$

$$EFI := E_i \cdot \frac{5}{3}$$

... assume radar detector is 5 m away from VSAT



... V/m measured at 3m

Attachment 2

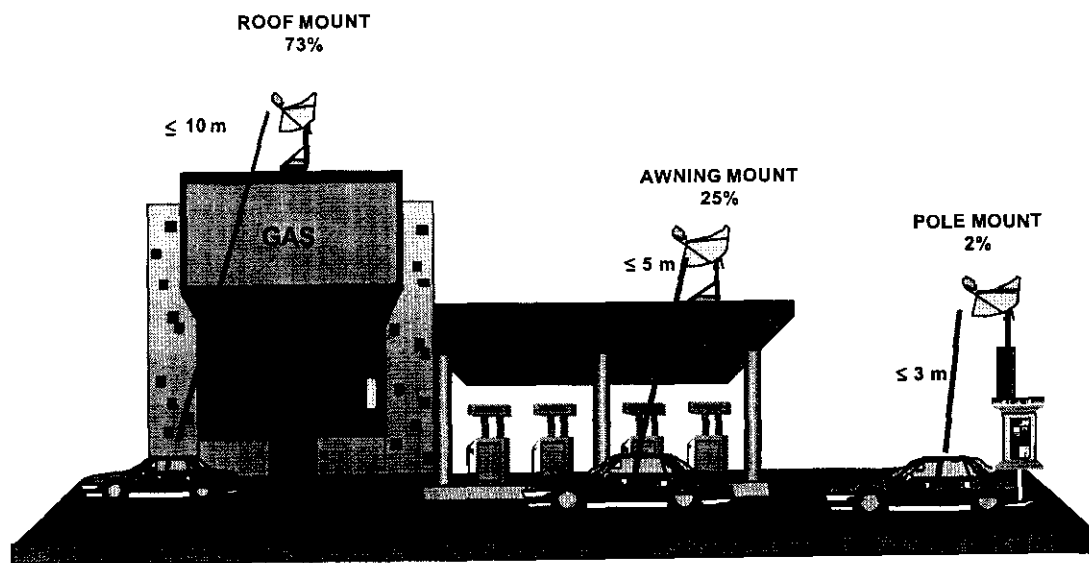
Based on a survey conducted by one large operator of VSATs, a total of 15,448 VSAT antennas were installed at gas stations from the period from January 1, 2000 through May 20, 2002.

These antennas were located either on a rooftop, a canopy/awning¹ or attached to a pole or on the ground. The distance was measured between the location of installation and the closest point at which a vehicle containing a radar detector is likely to be found (such as at a gas pump, a road or a parking area). For rooftop installations, this distance is an average of 5-10 meters from the antenna. In the case of canopies or awnings, vehicles containing radar detectors are likely to come within an average of 3-5 meters from the antenna. The average distance for a pole or ground installation is 3 meters.

The table below breaks out the type of installations and the average distances from a point where a vehicle containing a radar detector is likely to be located. While the table shows that most installations are within 10 meters of a radar detector location, a significant number of installations are within 5 meters. In order to adequately protect VSAT operations, radio frequency emission limits were calculated assuming a 5 meter distance based on the fact that 27% of a large sample of installations are located within this distance.

Installation Location (Distance from radar detector)	Percentage of total installations
Roof (5-10 m)	73.25%
Canopy/Awning (3-5 m)	24.71%
Pole/Ground (3 m)	2.04%
Total Number of Sites	15,448

¹ A canopy or awning refers to a roof-like structure, usually found over gas pumps.



Drawing not to scale

Attachment 3

Proposed Amendments to Parts 2 and 15 of the Rules Satellite Industry Association May __, 2002

Proposed Changes to Part 15 Rules:

§15.3 Definitions

(ee) *Radar detector.* Any device containing a radio receiver that detects the presence of radar signals.

§15.101 Equipment authorization of unintentional radiators.

(a) Except as otherwise exempted in §15.23, 15.103, and 15.113, unintentional radiators shall be authorized prior to the initiation of marketing, as follows:

Type of device	Equipment authorization required
TV broadcast receiver	Verification
FM broadcast receiver	Verification
CB receiver	Declaration of Conformity or Certification
Superregenerative receiver	Declaration of Conformity or Certification
Scanning receiver	Certification
All other receivers subject to part 15	Declaration of Conformity or Certification
TV interface device	Declaration of Conformity or Certification
Cable system terminal device	Declaration of Conformity
Stand-alone cable input selector switch	Verification
Class B personal computers and peripherals	Declaration of Conformity or Certification ¹
CPU boards and internal power supplies used with Class B personal computers	Declaration of Conformity or Certification ¹
Class B personal computers assembled using authorized CPU boards or power supplies	Declaration of Conformity
Class B external switching power supplies	Verification
Other Class B digital devices and peripherals	Verification
Class A digital devices, peripherals and external switching power supplies	Verification
Radar detectors	Certification
All other devices	Verification

(b) Only those receivers that operate (tune) within the frequency range of 30-960 MHz, and CB receivers, and radar detectors are subject to the authorizations shown in paragraph (a) of this section. However, receivers indicated as being subject to Declaration of Conformity that are contained within a transceiver, the transmitter portion of which is subject to certification, shall be authorized under the verification procedure. Receivers operating above 960 MHz or below 30 MHz, except for CB receivers and radar detectors, are exempt from complying with the technical provisions of this part but are subject to § 15.5.

§15.109

(h) For radar detectors, the field strength of radiated emissions within the frequency range of 10.7-12.7 GHz shall not exceed 85 microvolts/meter at a distance of 3 meters. The field strength of radiated emissions in other frequency ranges above 30 MHz from such devices shall comply with the limits in paragraph (a) of this section.

Proposed Changes to Part 2 Rules:

§ 2.962 Requirements for Telecommunication Certification Bodies

(f)(5) A TCB may not:

- (i) Grant a waiver of the rules, or certify equipment for which the Commission's rules or requirements do not exist or for which the application of the rules or requirements is unclear.
- (ii) Take enforcement actions; ~~or~~
- (iii) Authorize a transfer of control of a grantee; **or**
- (iv) **Grant certification applications for radar detectors (as defined in § 15.3(ee)).**

Effective Date: Immediately upon publication in the Federal Register.